

WHAT IS CLAIMED IS:

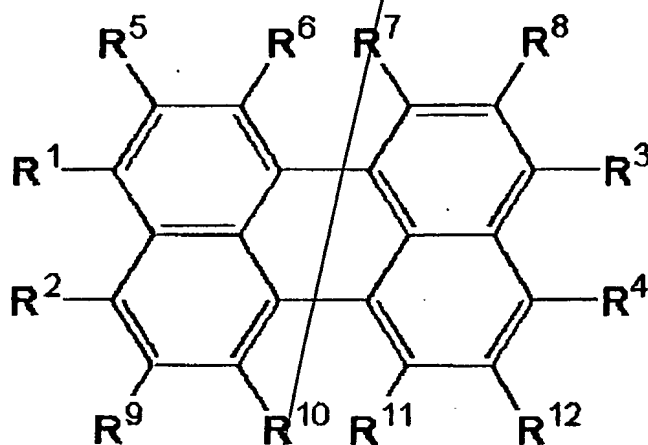
1. An electroluminescent device comprising:

(a) an anode;

(b) a cathode; and

(c) at least one organic layer sandwiched between said anode and said cathode, said organic layer including at least a red light emitting layer,

said organic layer containing a compound represented with the chemical formula C1, alone or in combination:



wherein R¹ to R⁴ each independently represents a hydrogen atom, a hydroxyl group, a substituted or unsubstituted amino group, a nitro group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aromatic hydrocarbon group, a substituted or unsubstituted aromatic heterocyclic group, or a substituted or unsubstituted aralkyl group,

wherein at least one of R¹ to R⁴ is a di-aryl amino group represented with —NAr¹Ar² where each of Ar¹ and Ar² independently indicates an aryl group having a carbon number of 6 to 20 both inclusive,

wherein R⁵ to R¹² each independently represents a hydrogen atom, a halogen atom, a hydroxyl group, a substituted or unsubstituted amino group, a nitro group, a cyano group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aromatic hydrocarbon group, a substituted or unsubstituted aromatic heterocyclic group, or a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryloxy group, a substituted or unsubstituted alkoxycarbonyl group, or a carboxyl group, and

wherein any two of R¹ to R⁴ except diaryl amino group and R⁵ to R¹² may form a ring.

2. The organic electroluminescent device as set forth in claim 1, wherein each of said Ar¹ and Ar² includes a substituent.

3. The organic electroluminescent device as set forth in claim 1, wherein said organic layer includes a hole transporting layer containing said compound represented with said chemical formula C1, alone or in combination.

4. The organic electroluminescent device as set forth in claim 1, wherein said anode has a work function equal to or greater than 4.5 eV.

5. The organic electroluminescent device as set forth in claim 5, wherein said cathode has a smaller work function than that of said anode.

6. The organic electroluminescent device as set forth in claim 1, wherein said organic layer has a thickness in the range of 1 nanometer to 1 micrometer both inclusive.

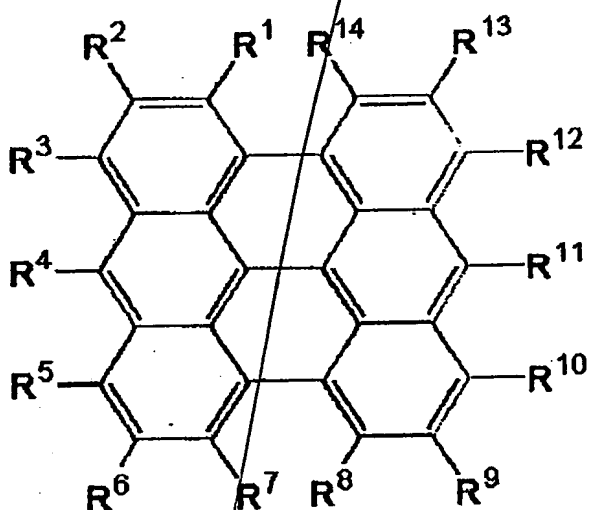
7. An electroluminescent device comprising:

(a) an anode;

(b) a cathode; and

(c) at least one organic layer sandwiched between said anode and said cathode, said organic layer including at least a red light emitting layer,

said organic layer containing a bisanthrene compound represented with the chemical formula C2, alone or in combination:



wherein R^1 to R^{14} each independently represents a hydrogen atom, a halogen atom, a hydroxyl group, a substituted or unsubstituted amino group, a nitro group, a cyano group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aromatic hydrocarbon group, a substituted or unsubstituted aromatic heterocyclic group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryloxy group, a substituted or unsubstituted alkoxycarbonyl group, or a carboxyl group, and

wherein any two of R^1 to R^{14} may form a ring.

8. The organic electroluminescent device as set forth in claim 7, wherein said organic layer includes a hole transporting layer containing said compound represented with said chemical formula C2, alone or in combination.

5 9. The organic electroluminescent device as set forth in claim 7, wherein said organic layer includes an electron transporting layer containing said compound represented with said chemical formula C2, alone or in combination.

10 10. The organic electroluminescent device as set forth in claim 7, wherein said organic layer includes both a hole transporting layer and an electron transporting layer, said electron transporting layer containing said compound represented with said chemical formula C2, alone or in combination.

15 11. The organic electroluminescent device as set forth in claim 7, wherein said anode has a work function equal to or greater than 4.5 eV.

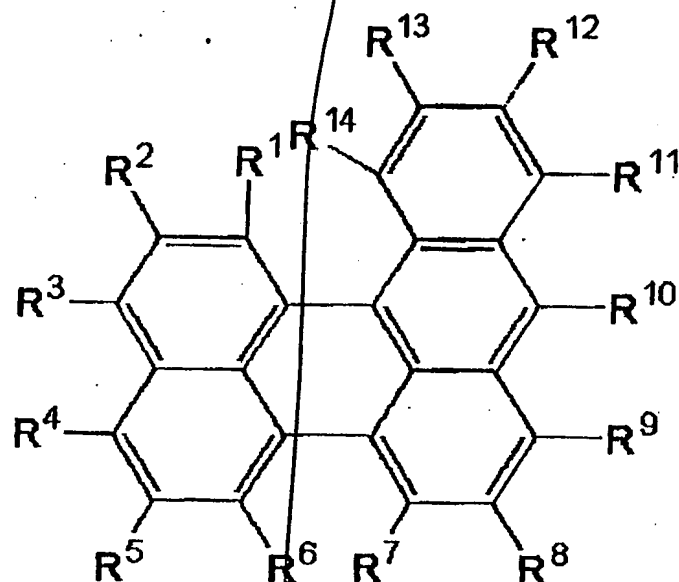
12. The organic electroluminescent device as set forth in claim 11, wherein said cathode has a smaller work function than that of said anode.

20 13. The organic electroluminescent device as set forth in claim 7, wherein said organic layer has a thickness in the range of 1 nanometer to 1 micrometer both inclusive.

14. An electroluminescent device comprising:

- 25 (a) an anode;
- (b) a cathode; and
- (c) at least one organic layer sandwiched between said anode and said cathode, said organic layer including at least a red light emitting layer, said organic layer containing a benzoperylene compound represented with

the chemical formula C3, alone or in combination:



wherein R¹ to R¹⁴ each independently represents a hydrogen atom, a halogen atom, a hydroxyl group, a substituted or unsubstituted amino group, a nitro group, a cyano group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aromatic hydrocarbon group, a substituted or unsubstituted aromatic heterocyclic group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryloxy group, a substituted or unsubstituted alkoxycarbonyl group, or a carboxyl group, and

wherein any two of R¹ to R¹⁴ may form a ring.

15. The organic electroluminescent device as set forth in claim 14, wherein said organic layer includes a hole transporting layer containing said benzoperylene compound represented with said chemical formula C3, alone or in combination.

16. The organic electroluminescent device as set forth in claim 14, wherein said organic layer includes an electron transporting layer containing said benzoperylene compound represented with said chemical formula C3, alone or in combination.

17. The organic electroluminescent device as set forth in claim 14, wherein at least one of R^1 to R^{14} is a di-aryl amino group represented with $-NAr^1Ar^2$ where each of Ar^1 and Ar^2 independently indicates an aryl group having a carbon number of 6 to 20 both inclusive.

18. The organic electroluminescent device as set forth in claim 17, wherein said aryl group has a substituent.

19. The organic electroluminescent device as set forth in claim 14, wherein at least one of R^1 to R^{14} is a di-aryl amino group represented with $-NAr^1Ar^2$ where each of Ar^1 and Ar^2 independently indicates an aryl group having a carbon number of 6 to 20 both inclusive, and at least one of said Ar^1 and Ar^2 includes a substituted or unsubstituted styryl group as a substituent.

20. The organic electroluminescent device as set forth in claim 19, wherein said aryl group has a substituent.

21. The organic electroluminescent device as set forth in claim 14 wherein said anode has a work function equal to or greater than 4.5 eV.

22. The organic electroluminescent device as set forth in claim 21, wherein said cathode has a smaller work function than that of said anode.

23. The organic electroluminescent device as set forth in claim 14, wherein

said organic layer has a thickness in the range of 1 nanometer to 1 micrometer both inclusive.

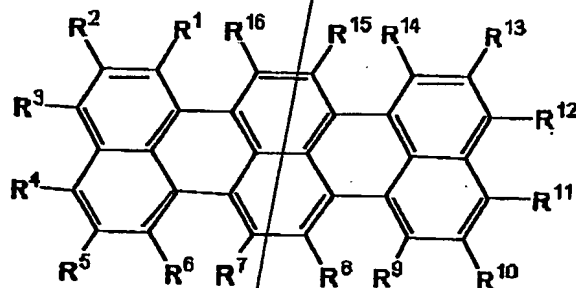
24. An electroluminescent device comprising:

(a) an anode;

(b) a cathode; and

(c) at least one organic layer sandwiched between said anode and said cathode, said organic layer including at least a red light emitting layer,

said organic layer containing a terylene compound represented with the chemical formula C4, alone or in combination:



wherein R¹ to R¹⁶ each independently represents a hydrogen atom, a halogen atom, a hydroxyl group, a substituted or unsubstituted amino group, a nitro group, a cyano group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aromatic hydrocarbon group, a substituted or unsubstituted aromatic heterocyclic group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryloxy group, a substituted or unsubstituted alkoxycarbonyl group, or a carboxyl group, and

wherein any two of R¹ to R¹⁶ may form a ring.

25. The organic electroluminescent device as set forth in claim 24, wherein said organic layer includes a hole transporting layer containing said terylene compound represented with said chemical formula C4, alone or in combination.

5 26. The organic electroluminescent device as set forth in claim 24, wherein said organic layer includes an electron transporting layer containing said terylene compound represented with said chemical formula C4, alone or in combination.

10 27. The organic electroluminescent device as set forth in claim 24, wherein at least one of R^1 to R^{14} is a di-aryl amino group represented with $-NAr^1Ar^2$ where each of Ar^1 and Ar^2 independently indicates an aryl group having a carbon number of 6 to 20 both inclusive.

15 28. The organic electroluminescent device as set forth in claim 27, wherein said aryl group has a substituent.

20 29. The organic electroluminescent device as set forth in claim 24, wherein at least one of R^1 to R^{14} is a di-aryl amino group represented with $-NAr^1Ar^2$ where each of Ar^1 and Ar^2 independently indicates an aryl group having a carbon number of 6 to 20 both inclusive, and at least one of said Ar^1 and Ar^2 includes a substituted or unsubstituted styryl group as a substituent.

25 30. The organic electroluminescent device as set forth in claim 29, wherein said aryl group has a substituent.

31. The organic electroluminescent device as set forth in claim 24, wherein said anode has a work function equal to or greater than 4.5 eV.

32. The organic electroluminescent device as set forth in claim 31, wherein

said cathode has a smaller work function than that of said anode.

33. The organic electroluminescent device as set forth in claim 24, wherein said organic layer has a thickness in the range of 1 nanometer to 1 micrometer both inclusive.

09961230 092401